Michigan Department of AGRICULTURE

Pesticide & Plant Pest Management Division

Annual Report 2001

Kenneth Rauscher, Director

The mission of the Pesticide and Plant Pest Management Division is to:

Protect human health and the environment, while fostering a diverse, viable Michigan agriculture.

INTRODUCTION

The Pesticide and Plant Pest Management Division (PPMD) is one of the larger divisions in the Michigan Department of Agriculture (MDA) with responsibility for programs in both urban and agricultural environments. The focus of this division is on the implementation of programs and regulations designed to protect human health, the environment, and the consumer, while fostering a business climate that allows for agriculture enterprise to thrive in Michigan.

The division has two primary sections, the Pesticide Section and the Plant Industry Section. The Pesticide section includes programs designed to foster proper use of pesticides to protect people and the environment through inspection of pesticide manufacturing facilities, regulation of pesticides at the point of sale, and certification of pesticide applicators by written exam. For firms that apply pesticides for hire, the division enforces licensing requirements and conducts inspections of these firms. PPPMD inspectors work proactively with the commercial and agricultural industries through inspection of facilities and operations that use pesticides in order to assure compliance with regulations. In addition, the division conducts investigations of complaints of pesticide use and regulates the outcome of those investigations.

The Plant Industry Section encompasses programs designed to assure Michigan consumers that plant material, agricultural commodities and fruits and vegetables meet label guarantees and are free from harmful insects and plant diseases. In the area of Michigan produce, the division inspects and certifies fruits and vegetables to assure proper grade as the commodities enter commerce. For the production of nursery stock and Christmas trees, the division inspects and certifies these crops for movement out of state. Quarantine enforcement and import inspections are some of the activities in place to prevent the spread of insect and disease pests. The division also works in the area of arbovirus surveillance to provide information to local health departments on the presence of mosquito borne diseases such as West Nile Virus, which was identified in Michigan for the first time in 2001. Also for 2001, the division enhanced its focus on biosecurity efforts designed to prevent the introduction and movement of serious animal and plant diseases such as Foot and Mouth Disease that have the potential to cause economic emergencies for Michigan agricultural operations.

As the global economy continues to grow, the attitude and work ethic of the employees in the Michigan Department of Agriculture continue to provide new ways of solving problems to enable the agricultural industry to grow, and the consumers to retain confidence in the marketplace. The following pages offer highlights on our specific programs.

To better serve our constituents, industry and the general public, Pesticide and Plant Pest Management Division staff can be found in seven regional office locations throughout the state.

Region #1	Escanaba	(906) 786-4011
Region #2	Traverse City	(231) 922-5210
Region #3	Grand Rapids	(616) 356-0600
Region #4	Saginaw	(517) 758-1778
Region #5	St. Joseph	(616) 428-2575
Region #6	Lansing	(517) 324-3237
Region #7	Southfield	(248) 356-1701

Michigan Department of Agriculture
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PESTICIDE SECTION

Legislative Activity

During FY'99, PPPMD staff convened a working committee to review proposed amendments to Act 451, Part 83 and Regulation 636. The committee included representation from MDA, the structural pest control industry, EPA Region 5, the lawn service industry, League of Women Voters, Michigan Farm Bureau, Michigan Agri-Business, the right-of-way industry, aquatic plant control industry, mosquito control districts, and the Michigan Environmental Action Council. PPPMD staff worked with this committee throughout FY'00 and FY'01 to review and discuss draft legislative proposals. To date, the committee has met on six occasions. At this time, final drafts of both Act 451 and Regulation 636 have been prepared, reviewed and approved by the Legislative Service Bureau.

A public hearing on proposed revisions to Regulation 636 was held on December 18, 2001 in Lansing. Representatives from several industry associations attended and offered their support for the proposed revisions. Comment received during the hearing as well as hearing testimony and all letters received are being reviewed and necessary and appropriate changes will be made to the draft rule as this process continues.

A bill sponsor has been identified for Act 451 and proposed revisions were officially introduced in December 2001. House and Senate committee discussion on the proposed revisions to the Act will likely begin in January/February after the holiday recess.

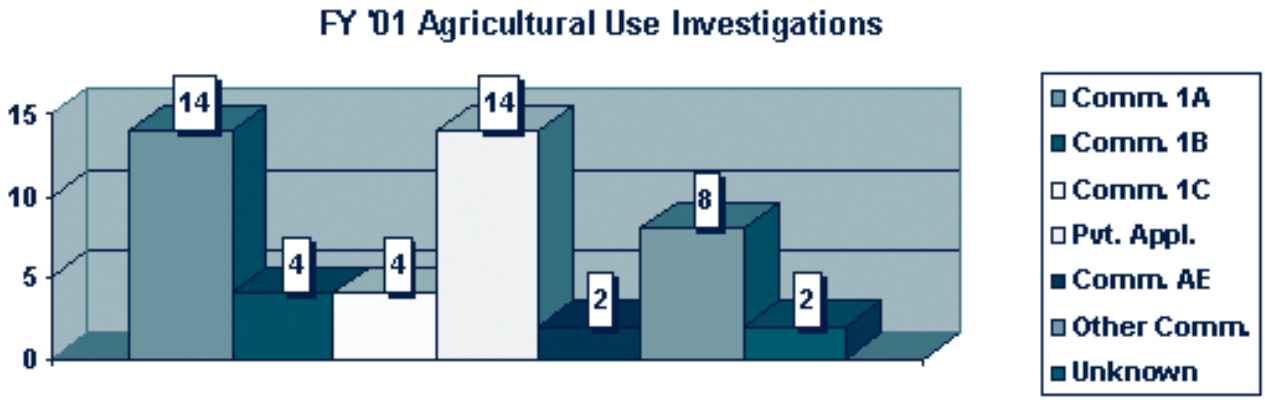
Enforcement Activity

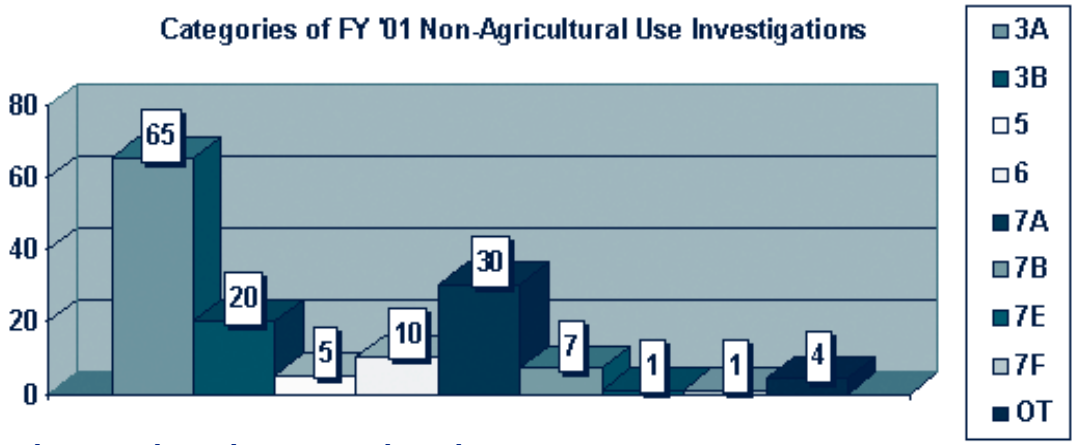
The enforcement program oversees all inspection and investigation activities for the pesticide section. These activities include conducting pesticide use/misuse investigations, inspecting pesticide producing establishments and pesticide marketplace locations, auditing of restricted use pesticide (RUP) dealer sales and commercial applicator records, addressing pesticide use violations related to food safety and farm worker protection and implementing federal and state targeted compliance monitoring initiatives.

Other enforcement activities include marketplace surveillance for unregistered pesticides and proper pesticide labeling, contacts with applicators and RUP dealers to assure compliance with certification and licensing requirements, and special projects focused on pesticide use issues in urban environments.

Use Investigations

PPPMD staff conducted 194 Pesticide Use Investigations (UIs) in FY'01, 48 of which occurred in agricultural situations and 146 in non-agricultural situations.





Supplemental Environmental Projects

Several firms found to be in violation of state pesticide use regulations voluntarily chose to sponsor supplemental environmental projects as part of their civil penalty. The following projects were sponsored as a result of penalties assessed during use investigations.

$500 was directed to MSU-Extension's Northwest Michigan facility to conduct a commercial applicator training session.

$1,250 was directed to the Michigan Agricultural Aviation Association, who utilized the funds to sponsor aerial pesticide applicator training programs consisting of two parts – calibration of aircraft in the spring and technical and regulatory discussions in the fall.

$350 was directed to the Kalamazoo County Nature Center to assist its volunteers with the collection of wild migratory bird blood samples to detect St. Louis Encephalitis, Eastern Equine Encephalitis, and West Nile Virus.

Pesticide Contacts

One thousand one hundred and twenty-six pesticide contacts were conducted in FY' 01. These focused inspections or contacts include targeted inspections of specific pesticide use activities, road check inspections, informational contacts, compliance assistance and outreach, and monitoring for compliance with state regulatory requirements. Some contacts contain specific orders to stop prohibited conduct such as failure to renew the firm's commercial pesticide applicator license.

Producer Establishment Inspections

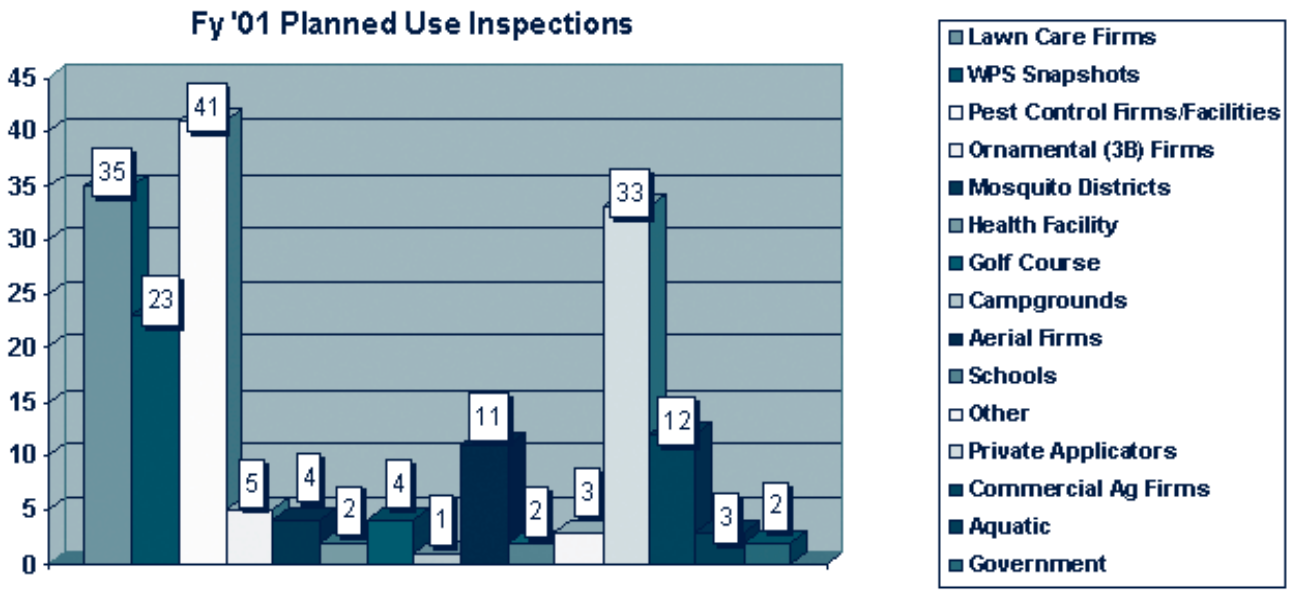
PPPMD staff conducted fifty-two Pesticide Producer Establishment Inspections (PEIs) in FY'01. Twenty-two inspections were conducted at bulk repackagers. Eighteen inspections specifically included WPS product label reviews and nineteen inspections specifically targeted antimicrobial pesticide product label reviews.

Federal Marketplace Inspections

PPPMD staff conducted twenty-one federal Marketplace Inspections (MPIs). Five specific inspections were conducted that focused on antimicrobial products. These inspections resulted in the collection of 21 antimicrobial documentary samples and one physical sample.

Planned Use Inspections

One hundred eighty Planned Use Inspections (PUIs) were conducted in FY'01; 70 were conducted at agricultural sites and 110 at non-agricultural sites.



Worker Protection Standards

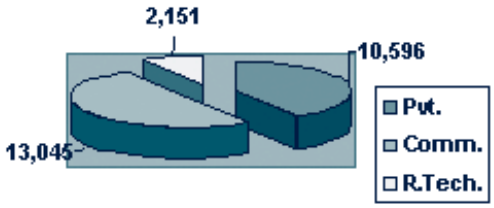
Inspection/Compliance Monitoring

PPPMD continues to work within the framework of the State Implementation Plan for Worker Protection Standards (WPS). The plan contains Michigan's strategy for development of cooperative relationships and compliance monitoring. The implementation plan was revised in FY'99 to accurately reflect all WPS activities conducted by PPPM. PPPMD staff continue to provide WPS compliance assistance, but with more emphasis on WPS enforcement.

In FY'01 PPPMD staff participated in WPS outreach activities including WPS presentations, approved trainer programs, and display booth exhibits. These activities were sponsored or coordinated by MDA, MSU Extension, farm organizations, and commodity groups. MDA reached approximately 1500 individuals through these activities including members of the Michigan Greenhouse Growers Association, The Michigan Nursery and Landscape Association, The Michigan Horticultural Society, Migrant health Care Clinics, Western Michigan University, and the University of Michigan (Rural Health Program).

Certification Activities

Currently there are over twenty five thousand (25,000)-pesticide applicators who are either certified or registered in Michigan. The chart below illustrates the number of pesticide applicators by type.

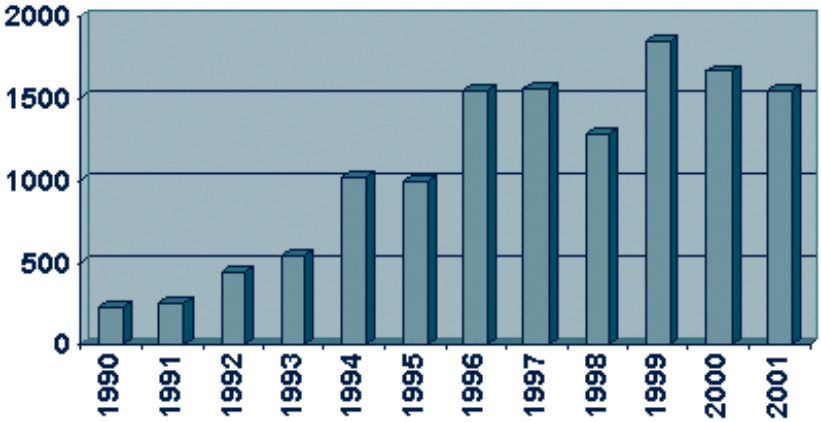


Exams

A total of 14,975 pesticide applicator exams were administered to private, commercial and registered applicators throughout the state in FY'01. This figure represents both initial exams administered to applicants becoming certified/registered for the first time and renewal exams administered to applicants renewing their credentials. It includes repeated exam attempts. The exam numbers by applicator type are as follows: Private (2,135), Commercial (11,734), and Registered Technician (1,106). These exams were administered during 353 regional office exam sessions and 161 non-regional office exam sessions i.e. extension offices, private firms, etc.

Recertification Activities

Seven hundred twenty-eight seminars were approved for recertification credits in FY'01. The following chart and corresponding table identifies the number of certified applicators that have renewed their certification credential by seminar credits each fiscal year since the program implementation. In FY'01, 1,538 applicators renewed their credentials in this manner.



Integrated Pest Management Activities

The Natural Resources and Environmental Protection Act, Act 451 of 1994 as amended, and Regulation 637 set forth requirements for use of Integrated Pest Management (IPM) practices in schools, health care facilities and public buildings. These requirements include provisions for pesticide applicator attendance at an approved IPM training program and verifiable IPM programs for buildings.

To assist pesticide applicators with compliance, MDA and the Michigan Pest Control Association (MPCA) developed a joint IPM training program. In FY'01, this training program was offered at 22 locations throughout the state with a total of 724 people in attendance. Participants included representatives from health care facilities, schools, public buildings and the pest control industry.

Community Pesticide Education Programs

The Community Pesticide Education Program (CPEP) is a comprehensive approach to reaching the public with educational information on legal pesticide use, handling and disposal, risks associated with pesticide use, the basics of IPM, information on structural pests, and how to choose a pest control company. The program goal is to identify and establish a presence in Michigan urban communities that are vulnerable to the misuse of pesticides, and to develop and strengthen ties with community residents and associations, to promote integrated pest management and reduce the risks associated with the misuse of pesticides.

In FY'01, CPEP worked directly with community groups and conducted training on IPM techniques, how to conduct a home inspection, and proper monitoring techniques. CPEP is also in the process of producing a "how to" video on IPM in the home. This is a joint effort between CPEP and the University of Michigan (U of M) who shared in the cost for production of the video.

CPEP also continues to utilize the expertise within the University of Michigan (U of M) Building Services Pest Management Division, to serve the community groups and MDA in urban pest identification. U of M staff receive several calls per week for identification of insects and consultation on IPM.

Parents Together

Parents Together is a grass roots organization made up of residents and leaders of the south side of Ypsilanti, who are dedicated to helping rid the community of destructive influences.

The objectives of this organization are to encourage residents in the community to work together in a cooperative effort to increase the awareness of the risks associated with pesticide misuse in the home and promote IPM as a safer approach to pest control in homes. In FY'01, Parents Together conducted several community awareness activities on the health impact of pests and pesticides including holding meetings, hosting an environmental health carnival and sponsoring a talent show where the message of IPM and safe pesticide use was delivered.

Teen Awareness Workshops on Health and Environmental Risks of Pests and Pesticides were also conducted with several youths and adults in attendance.

To assist in community outreach, an IPM resource center was established for the community and new volunteers were recruited.

People and the Environment Stewardship Together (P.E.S.T)

PEST is a newly formed pesticide-working group made up of community leaders and members in the Baker-Donora neighborhood of Lansing. P.E.S.T. is located in the Baker-Donora Focus Center, a neighborhood network center operated by Capital Area Community Services, devoted to bringing coordinated education, information, and social services to local residents. P.E.S.T. was formed with the mission to work together to reduce the health and environmental risks of pests and pesticides in the Baker-Donora neighborhood.

In FY'01, P.E.S.T. conducted two working group meetings to prioritize goals, conduct training programs and plan activities. Three community training programs were held on general pest, cockroach and head lice management. Over forty residents attended. P.E.S.T. organized a "rap talent show", where participants made up rap songs about pesticides and pests.

Community Action against Asthma (CAAA)

CAAA is a five-year intervention and research project designed to decrease the health risks associated with asthma in urban children. Three hundred homes in the city of Detroit are involved in the study. Community Environmental Specialists (CES) meet with the families to develop plans to reduce household asthma triggers. Many of these homes are infested with cockroaches, which are known allergens.

The goal of CAAA is to investigate the environmental, pathophysiological and clinical mechanism of childhood asthma and to implement comprehensive household and neighborhood level intervention to reduce indoor and outdoor environmental triggers and thereby improve asthma related health status in children.

All CES workers have participated in a verifiable IPM training program that included IPM techniques on roaches and hands on training on inspecting for conditions conducive for pests.

The CES workers have implemented IPM in 24 homes and have focused on behavioral modification. CPEP, working together with Abell Pest Control, provides technical assistance for the program.

Wayne County Rat Coalition

The Wayne County Rat Coalition (WCRC) is an organization of local and state officials working with communities within Wayne County that are facing rat infestations. In order to protect health and well being, the communities must educate on proper rat management and pesticide application using the IPM framework. The County of Wayne consists of forty-three communities, over eighty-three major ethnic populations and twenty-six different languages.

The goal of WCRC is to develop a training program for communities in the County of Wayne to assist them in identifying rodent harborage, selecting control measures, and planning for maintaining the environmentally improved areas.

In FY'01, the WCRC presented a program on controlling rats using IPM techniques to over two hundred code enforcement officers at their national convention. The coalition continues to be active in the communities by providing technical information on rat management.

Pesticide Registration

FIFRA Section 18 Exemptions

Section 18 of FIFRA allows states to request from EPA, the use of an unregistered pesticide to control an emergency pest problem within the state. When an emergency situation develops, a Michigan State University Extension specialist petitions MDA for a section 18 emergency exemption. MDA evaluates the situation to see if it meets section 18 criteria and if so, works with the extension specialist to develop the section 18 exemption request. In FY'01, PPPMD staff reviewed and prepared twenty section 18 specific exemption requests for submission to EPA. Seventeen of the section 18 exemption requests were granted or issued a section 18 crisis exemption. Three section 18-exemption requests were not submitted to the agency due to a determination by PPPMD that they did not meet the definition of an "emergency situation."

In situations where there is not enough time to request a section 18 specific exemption from EPA, PPPMD can issue a section 18 crisis exemption which allows the use of the pesticide immediately for a period of 15 days. MDA issued three section 18 crisis exemptions in FY'01.

24(c) Registrations

Section 24(c) of FIFRA allows states to issue registrations for additional sites or changes in use patterns for federally registered pesticides as long as a special local need (SLN) exists. A SLN means a pest problem within the state for which MDA has determined that an appropriate federally registered pesticide product is not sufficiently available. MDA will not approve these registrations when registered alternatives exist or the residue data does not support the registration. PPPMD staff issued three 24(c) registrations in FY'01.

Experimental Use Permits (EUPs)

Section 5 of FIFRA allows pesticide registrants to obtain a permit from EPA to do experimental trials in the states for which they would like to seek registration. MDA requires registrants to submit a summary of the experimental program as well as the names and locations of the cooperators within the State. PPPMD staff collected information on five experimental use permits for use during FY'01.

Restricted Use Pesticides (RUP's)

PPPMD staff conducted eighty-eight Restricted Use Pesticide dealer audits in FY'01. Twenty-two enforcement actions were issued. In addition, PPPMD conducted 40 initial inventories of restricted use pesticides at dealer sites to facilitate audits in FY'02.

Enforcement Actions For RUP's

Enforcement Actions	#/Dealers	% of Total
None	66	75.00%
Advisory Letter	2	2.30%
Warning Letter	12	13.60%
Informal Hearing	0	0%
Notice of Intent (Recommended)	7	8.00%
Referral to EPA	1	1.10%
TOTALS	88	100.00%

Food Quality Protection Act

In FY'98 MDA, EPA and MSU began the process of collecting data on pesticide use and potential food residues in an effort to develop food quality protection act (FQPA) commodity specific data. This activity continued through FY'00-01. In addition, information on pesticide use and residue information for targeted commodities at risk under FQPA, especially minor crops, was developed and forwarded to EPA.

As in previous years, the FY'01 MDA, EPA region 5, and MSU initiative was and is a multi-faceted approach to address the crisis facing agriculture because of FQPA.

The 2001 project continued to coordinate information and program activities between state and federal regulatory agencies, research groups, educational institutions, commodity, grower and processor organizations, and registrants to strategize solutions to this potential crisis.

The FY'01 program reflected a modified approach at data collection in an effort to assess the newest alternative pesticides. MSU research projects assessing efficacy on new alternatives are also being analyzed for residues on raw commodities. Under this system, MDA was able to access use data and generate residue data for review by MDA, EPA and MSU. The 2001 program looked at blueberries, strawberries, grapes, raspberries, carrots, and cranberry bog water.

The FY'01 program included MDA, MSU (extension and research specialists) and EPA (Region 5 and Health Effects Division (HED)), in planning and design of the project. EPA – HED was very interested in new alternative residue data, as the existing USDA Pesticide Data Program screen does not include many of these new compounds.

Finally, the 2001 program continued to provide information and educational materials to affected producers and processors with support from EPA region 5.

In addition, MDA conducted pesticide residue testing on Christmas tree foliage and indoor air samples, dry beans and wheat. The Christmas tree project tested foliage collected from a block of Christmas trees, foliage taken from an individual tree to be placed in a home, and air samples collected from the room in which the Christmas tree was placed. The Michigan Christmas tree industry requested MDA assistance in assessing foliar residues and potential indoor air residues. Results from this project did detect some residue on foliage, but did not detect any residue in the indoor air samples. The dry bean project was a small project to determine if any residues exist on dry beans, in an effort to help the Michigan bean industry answer residue questions from other countries importing Michigan beans. Lastly, the wheat samples were a spot check for gramoxone. Based on misuse in other states, MDA used wheat samples collected initially for vomitoxin analysis to test for the presence of gramoxone. All wheat samples were negative.

All commodity samples have been received and are in various stages of analysis. Analytical work should be completed by the end of January (2002), followed shortly by data analysis and final report generation. A final report on the FY'01 project should be completed by mid-April 2002.

Insect and Rodent Management Activities

Lyme Disease

The insect and rodent program provides tick identification and referral services for ticks submitted to MDA. In FY'01, a total of 435 ticks were examined and identified by species. Forty-eight of the 435 ticks (11.3 percent) were *Ixodes scapularis* (deer ticks) that are capable of transmitting Lyme disease to humans and other mammalian hosts. Seven of these 48 ticks (14.6 percent) were positive for the *Borrelia burgdorferi* organism, which causes Lyme Disease. Six of these positive ticks were from Menominee County and one was positive from Kent County, which marks a new finding for Michigan. This is the first time Michigan has confirmed a positive deer tick from the Lower Peninsula. The Michigan Department of Community Health (MDCH) confirmed test results.

Arbovirus Surveillance Program

MDA coordinated the Statewide Arbovirus Surveillance Program, which included monitoring efforts for West Niles virus (WNV), St. Louis Encephalitis (SLE), and Eastern Equine Encephalitis (EEE). A total of 32 Michigan counties in the lower half of the Lower Peninsula participated in this surveillance effort.

Participants of the program included local health departments (LHD), county mosquito abatement agencies, bird banding groups, veterinarian clinics, university scientist, local volunteers and employees from the Michigan Dept. of Agriculture (MDA), Michigan Dept. of Natural Resources, and Michigan Department of Community Health (MDCH). To assure uniform collection procedures and laboratory testing methods, this program coordinated laboratory testing efforts with four different laboratories (Michigan State University (MSU)- Animal Health Diagnostic Laboratory (AHDL), MSU- Entomology Laboratory (EL), MDCH- Virology Laboratory (VL), and MDA- Laboratory (L)).

Laboratory results for SLE yielded no detection from mosquito and wild bird blood samples. Laboratory results for EEE yielded five positive detections from two adult Gray CatBirds (all from Kalamazoo County). Two mosquito pool samples were detected for EEE (one from Tuscola County and one from Bay County). No horses were found positive for EEE.

WNV was detected in 65 out of 583 dead birds that were submitted. MDA-L screened 25,999 mosquitoes and 1,066 wild bird/sentinel flock pheasants for the detection of WNV, SLE, and EEE. MSU-EL screened 9,651 mosquitoes and 1,655 wild bird/sentinel flock pheasants for the detection of WNV, SLE, and EEE. MSU-AHDL screened 583 dead wild birds for the WNV and 1 horse for the presence of EEE and WNV.

All dead bird samples were screened and tested by MSU-AHDL. Mosquito and wild bird blood samples were tested by either MSU-EL or MDA-L. There were approximately twenty human samples submitted for WNV testing, all were negative.

Michigan Arbovirus Emergency Procedures Are Tested

In FY'01, MDA worked with 35 different entities (local health departments, county mosquito abatement agencies, state agencies, as well as industry providers) once the West Nile Virus was detected in dead birds. The "Standard Operating Procedures for Michigan Arbovirus Emergencies" plan was implemented. The plan was designed to respond to arbovirus emergencies in Michigan once detected. Response groups mentioned in the plan met regularly during this outbreak period to assure local community and local agency concerns that the State of Michigan was responding appropriately to this emergency.

PLANT INDUSTRY SECTION

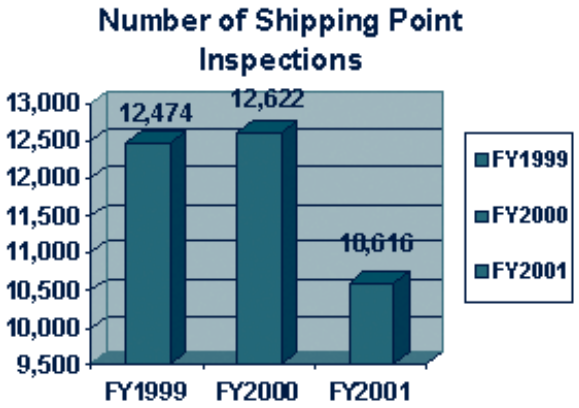
Fruit and Vegetable Inspection Programs

The fruit and vegetable inspection program (F & V) provides an unbiased, third party inspection service for a worldwide produce industry. Inspections are based on USDA standards, Michigan standards, processor specifications and/or industry needs. The inspection program is mostly voluntary, with mandatory inspections being performed for export, school lunch, government purchase, and federal diversion programs. All Fruit & Vegetable inspectors must be licensed by USDA to perform inspections on produce.

Shipping Point Inspections

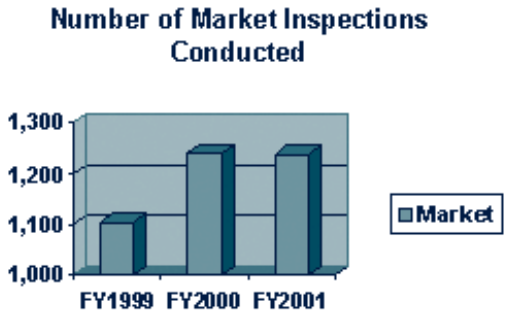
Sixteen USDA licensed inspectors performed 10,616 shipping point inspections on 193,147,677 pounds of produce prior to shipment. This type of inspection verifies quality and condition of produce prior to shipment.

The industry uses inspection as a marketing tool and it helps to assure that the produce being shipped meets the grade marked on containers and bags. USDA grades are recognized worldwide and are used to determine value of produce.



Market Inspections

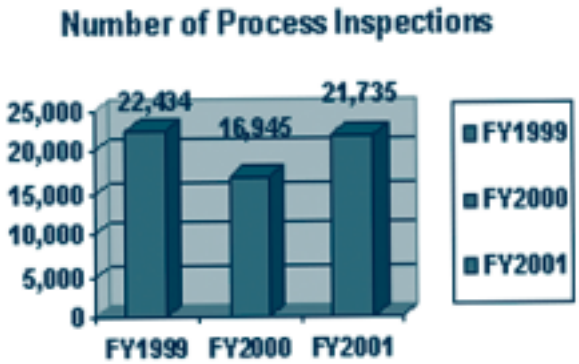
Eight of Michigan's F & V inspectors and supervisors are licensed to inspect incoming loads of produce at various markets. This produce may arrive in Michigan from anywhere in the world. During FY2001, MDA conducted 1,240 inspections on 21,459,362 pounds of produce.



Process Inspections

Forty-two inspectors conducted 21,681 process inspections, using USDA grades, or processor specifications. Temporary seasonal inspectors received classroom training along with on site training by experienced inspectors. During FY 2001 process inspections were conducted on 385,436,721 pounds of produce destined for processing in Michigan, Canada, Pennsylvania, and New York. Process inspections were conducted on apples, blueberries, cherries, grapes, tomatoes and peppers.

A computerized inspector process was utilized for the second year for grapes destined for processing. The inspectors inspected the grapes received at the process plant, they entered the inspection data into the processor's computer, and printed copies of certificates. The data was uploaded into the processor's main office in New York. Michigan, New York, Pennsylvania, and Washington all used the new electronic inspection program on grapes harvested for this processor. Process grape production was down considerably due to adverse weather conditions.



Controlled Atmosphere Storage Licensing Program

During calendar year 2001, 37 controlled atmosphere storage operator's requested inspections on 212 rooms containing 140,103,000 pounds of apples. One hundred ninty-four rooms met the requirement of the Act.

Phytosanitary inspections

Phytosanitary inspections were conducted on 86 produce exports including: apples, beans, and blueberries. Most importing countries restrict the importation of insects and diseases on incoming produce. Phyto's were issued for the following countries: Columbia, Costa Rica, Dominican Republic, Honduras, Ireland, Israel, Italy, Mexico, United Kingdom, and Venezuela.

Wholesale Potato Dealer Licensing Program

Wholesale Potato Dealer Licensing Program issued 20 licenses this fiscal year. The intent of this program is to protect Michigan potato growers should a wholesale potato dealer fail to pay for the potatoes purchased. The Michigan Department of Agriculture requires wholesale potato dealers to post a bond or letter of credit as a condition of licensing. During this fiscal year multiple complaints were received against a deceased licensed wholesale potato dealer. MDA and the attorney general office worked with the bank to resolve their claims. All three Michigan farmers who filed a claim with MDA received payment in full.

Seed Potato Inspection

Seventeen Michigan seed potato farmers produce 2,363 acres of seed potatoes. Michigan seed farmers are shifting to raising mostly "chip" type varieties. In recent years the Michigan Seed Shippers Association (MSPA) has implemented a study to reduce bruising at the farms. MSPA received a grant with MDA to fund a portion of this program.

Dry Bean Inspection Program

Since the amendments to Regulation 523 in December of 1998, the dry bean program has made significant changes which impacted MDA's need to provide oversight to Michigan Bean Shippers Association (MBSA). MBSA's anticipated revenue from dry bean inspection was down considerably as the amendments to the regulation eliminated mandatory inspection. In early 2001 MBSA contacted MDA to request that MDA consider providing all the inspection activities on dry beans. The MBSA inspection program became a MDA inspection program on March 1, 2001. The dry bean industry experienced major reductions in crop production due to the drought. In 2001 it is estimated the yield was approximately 600 pounds per acre (average yield for the last five years 1,634 pounds per acre). The quality of the crop was greatly reduced compared to normal years. Through November 2001 there were 961 dry bean samples submitted for inspection representing shipments of 63,893,000 pounds and 109 onsite certificates issued representing 9,510,000 pounds.

Michigan Organic Products Program

During fiscal year 2001, PPPMD worked on implementing the new Michigan Organic Products Act, Act 316, which became effective October 1, 2001. The first activity was to establish an organic advisory committee based on the structure established in the statute. This committee consists of 11 members representing organic producers, retail food establishments, processors, input suppliers and consumers. Also included are several ex-officio members from Michigan State University, USDA, MDA and an environmental constituent.

Once established, this group moved forward to work on developing a list of contacts (producers and handlers) that will be regulated under the new law. PPPMD continues to compile this list in electronic format. New application forms are under review for certifying agents and handlers, both of which are required to register with the department.

PPPMD also applied to USDA for approval of the new state program. Under the existing federal law and new national standards, any state with an organic program is required to apply to USDA, and once approved, will implement both the state program and the federal program. Part of the USDA approval is to insure that state programs are consistent with the national program, and to provide USDA an opportunity to review and approve any state standards which exceed the national program. Michigan law has one significant deviation, in that the state law requires any handler, regardless of size to register with the department. This registration requires that products be produced and handled under certification standards, certified by registered certifying agents. The federal law and standards exempt producers and handlers with retail sales between $ 0-5,000. Both the department, Michigan organic industry and the organic advisory

committee support the more stringent state requirements. Michigan awaits USDA review.

At the same time, PPPMD is working to formally adopt the new federal certification standards, so that Michigan will operate uniformly with other states that regulate organic production and handling. Again, the organic advisory committee and industry support this action plan,
PPPMD is dedicated to supporting this new, growing industry to insure compliance with state and federal laws and provide consumer confidence in organic products and production standards.

Agricultural Products / Quality Assurance

Commercial Feed Program

The Pesticide and Plant Pest Management Division (PPPM) regulates the manufacture and distribution of commercial animal feeds. The Department also promptly investigates reports of animal deaths or illnesses where feed may be implicated. This insures that necessary actions to protect the food supply are swiftly undertaken. PPPM made 630 inspections of commercial feeds and the processes involved in their production, distribution, and storage. Inspectors contacted feed manufacturers, distributors and others an additional 907 times to follow up on previous

inspections and assist companies with compliance or to investigate complaints related to feeds. Inspections of feed manufacturing practices, and the products and their labels help to assure that animal feeds are marketed fairly and are safe for their intended uses. These inspections also help assure that the meat, eggs, and dairy products obtained from production livestock are safe and wholesome.

Through its routine surveillance activities PPPM discovered 577 feed law violations which resulted in the removal of $301,537 worth of feed from distribution. During the year, MDA investigated 18 complaints alleging feed-related animal deaths or illnesses, problems with feed quality, or adulteration. As a result of MDA's feed inspection activities, enforcement action was initiated against serious and repeat violators. These actions included 4 warning letters and 1 informal hearing.

Routine feed sampling and testing continued to be curtailed in 2001 because of the closure of the laboratory due to renovations.

Medicated Feeds

Therapeutic and production drugs are commonly administered to livestock through their feeds. Therefore, MDA monitors the manufacturers of these products closely for compliance with regulations designed to prevent unsafe drug residues in human food. PPPM conducted 195 inspections at 118 of the approximately 290 feed mills in the state, including 7 FDA-licensed establishments, to determine compliance with good manufacturing practices regulations for medicated feeds.

"Mad Cow Disease" Prevention

Technically known as Bovine Spongiform Encephalopathy, or BSE, Mad Cow Disease is a progressive degenerative brain disease of cattle that is always 100% fatal. At the present time, confirmation is possible only following an animal's death. BSE has been confirmed in 19 European countries and in Japan. Today, BSE is presumed to have a connection with a variant of Creutzfeldt-Jakob disease (v-CJD), the human form of the disease, which causes dementia and death. As of Nov. 2, 2001, 111 cases of vCJD had been identified in the United Kingdom, one in Ireland, and four in France. Victims may have been infected 10 years or more before symptoms appeared. Neither disease has ever been detected in the United States.

The Food and Drug Administration (FDA) issued a regulation in 1997 prohibiting most mammalian protein products from being used as or in the feed of ruminant animals (e.g. cattle, sheep, goats, deer, elk, bison, and buffalo). The purpose of this regulation is to prevent the establishment and amplification of BSE in the United States through feed, and thereby minimize any risk to animals and humans. The regulation addresses the handling and use of any feed ingredient that meets the definition of so-called "prohibited materials" so that contamination of feeds intended for ruminant animals can be avoided.

PPPM inspectors have been inspecting feed manufacturing facilities throughout the state since 1998.

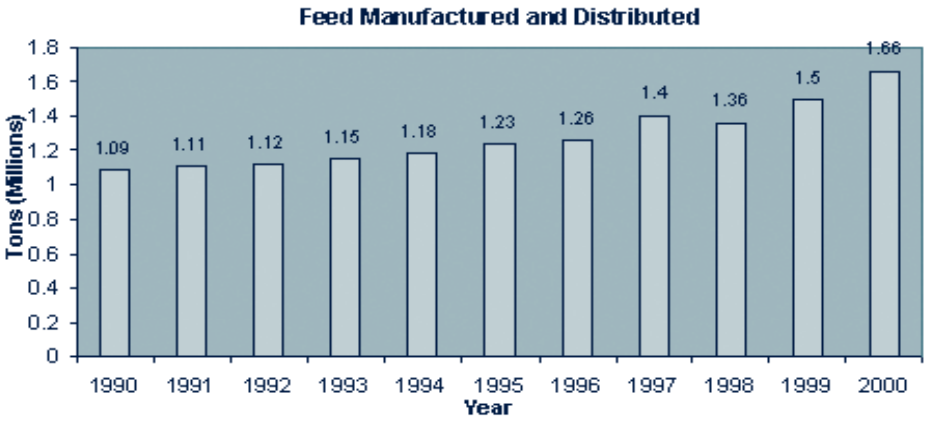
Thus far, 251 of the state's 268 livestock feed manufacturing facilities have been inspected at least once with 100% of those firms in compliance with the regulation. 336 BSE inspections were performed in 2001 and MDA continues to inspect all firms on a regular basis to assure continued compliance.

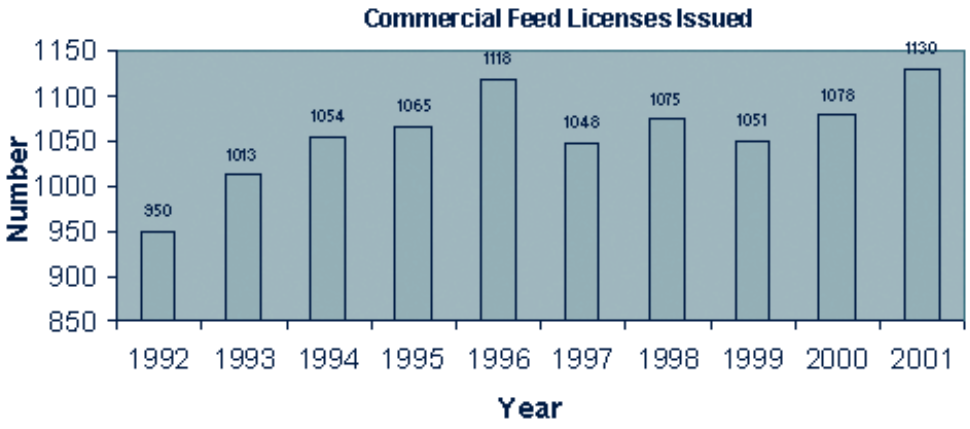
Feed Contaminant Survey

A partnership with the Food and Drug Administration that enables MDA to survey animal feeds for pesticide residues was expanded in 2000 to included mycotoxins. 2001 was the fifth consecutive year MDA has participated with FDA in this endeavor. The information obtained is useful in determining if additional measures are needed to prevent harmful residues in human food. This year, 17 samples were tested for pesticide residues and 8 were tested for mycotoxin contamination. The survey once again indicated that these feeds were well below FDA guidance levels.

The total amount of feeds manufactured and distributed in Michigan increased to an eleven-year high of 1.66 million tons in 2000, up from 1.5 million tons the previous year. The following graph demonstrates the general increase in commercial feeds and feed ingredients manufactured or distributed in Michigan over the past 11 years. The 2001 totals are not yet available.

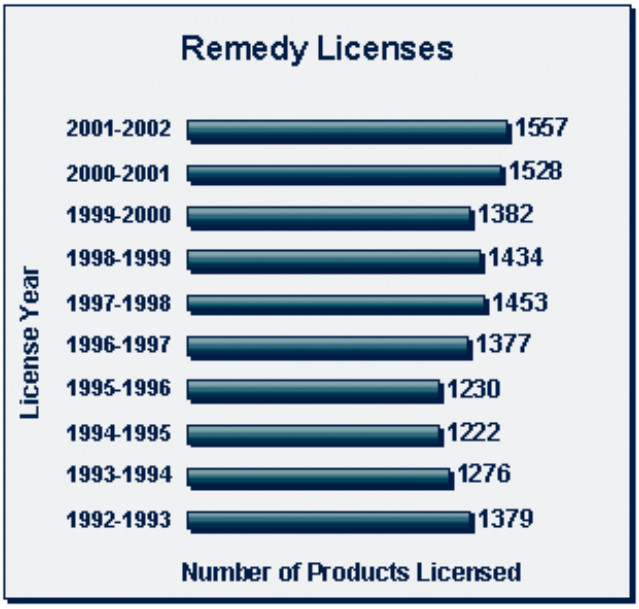
In the year 2001, MDA licensed 1,130 feed manufacturers and distributors, an increase of 52 over the previous year. This is the highest number of licenses issued in the past ten years.





Animal Remedies

Modern animal husbandry practices often demand the use of drugs and vaccines to prevent or treat diseases. These diseases can harm herd health and cause decreases in production. Unhealthy animals can also increase the risk of food-borne disease in humans. Likewise, a wide variety of drugs and vaccines are used extensively by homeowners in the care of their pets. The purpose of the MDA Animal Remedy Program is to provide assurance that these drugs and vaccines are safe, properly labeled, and effective for their intended uses.



MDA issued 1,528 animal remedy product licenses to 111 companies in 2001. There were 8 companies that declined to renew 32 product licenses they had held. So far, 1,557 product licenses have been issued to 129 companies approximately 3/4 through the license year that began in July 2001.

Plant Industry inspectors made a total of 165 inspections checking for unlicensed or misbranded remedies, reporting 211 violations and removing $71,596 worth of violative products from sale, more than $39,000 over the previous year's total.

Elevator and Feed Mill Sanitation

Under the Grain Elevator Sanitation Program, MDA inspectors help to assure that the conditions which can have a detrimental impact on the safety of Michigan's food supply are eliminated. In doing so, they help to prevent costly economic losses of grain and animal feeds to pests and other forms of environmental or chemical contamination.

During 2001 PPPM made a total of 602 inspections to look for compliance with sanitation requirements in 370 of these facilities. Through these inspections, MDA helped to protect the wholesomeness of nearly $435 million worth of beans, feed grains, and wheat sold in the state. Inspectors reported 7 violations, removing from sale $2,695 worth of unfit grain.

In order to effect improved compliance, enforcement efforts included the issuance of 13 warning letters and 2 informal hearings for repeated inspection failures and failure to correct insanitary conditions in a timely manner.

Fertilizer and Liming Program

The fertilizer and liming program regulates over 700 manufacturers and distributors of over 1.4 million tons of fertilizer, soil conditioner, and liming materials for both farm and nonfarm use. Michigan farmers and residents of the state rely on this quality assurance and consumer protection program to maximize yields and maintain a profitable farm operation. In addition, millions of state residents depend on this program to protect them from fraud when purchasing fertilizer for home and garden use.

Some of the main fertilizer activities PPPMD was involved in 2001 include:

Registration/Licensing

Each year, PPPMD conducts numerous manufacturing and marketplace inspections and label reviews. The electronic

reporting system used by staff aids this process by providing easy access to current registration data, uniform reports, and tracking capabilities for unregistered and misbranded fertilizer products sold in Michigan. This year 332 notices were written for fertilizer and liming materials found to be in violation of the Fertilizer Act. Because fertilizer is the most widely used agrichemical, it is essential to provide customers and industry with a high level of regulatory assurance.

Sampling

Due to the increased cost of nitrogen and the concern for fraud, a small-scale fertilizer sampling program was conducted in the spring of 2001. Although fertilizer sampling was not planned this year due to the lab renovation, a contract was established with the Ohio Department of Agriculture's lab to run the samples. Manufactured and custom blend fertilizers were tested for total nitrogen, available phosphorus, and soluble potash (N-P-K).

Statewide, PPPMD staff collected 193 samples, resulting in 52 violations. This represents a violation rate of 27%. While nitrogen was the most expensive of the three plant nutrients tested, only a third of the violations had an incorrect nitrogen claim. The sample results do not show a specific plant nutrient N, P, or K misclaimed more frequently over any another nutrient. PPPMD sent notices to firms with violative sample results and worked with these firms to review their blending/manufacturing procedures.

Ammonium Nitrate (AN)

Reminders were sent to agricultural chemical applicators and dealers to be aware of the potential for theft of AN in light of the recent terrorist events in the U.S. AN is a form of nitrogen fertilizer (33-34%) that becomes quickly available to plants. In Michigan, AN is primarily used in the fruit tree industry, for vegetable crops such as asparagus, and in no till fields where wheat is planted the following year. Although less than one percent of Michigan's fertilizer consumption is AN, it is important that those who manufacture, transport, store, sell, distribute, or use the product monitor for suspicious activity and be proactive in all security measures.

Anhydrous Ammonia

Anhydrous ammonia is one of the key ingredients in the illegal production of methamphetamine. The wrongful use of anhydrous ammonia is of great concern to agriculture since it is widely used as a low-cost form of agricultural fertilizer. In Michigan over 75 locations supply approximately 140,000 tons of anhydrous ammonia for agricultural use.

Throughout 2001, PPPMD worked in cooperation with state agencies and stakeholders to advise agricultural dealers and farmers on how they can help deter illicit use of anhydrous ammonia while protecting its safe, intended use. Projects included press conferences, presentations, and distributing bumper stickers and brochures to agricultural related groups.

A toll-free tip line for reporting the manufacture, sale, and use of methamphetamine is available. Individuals can call 1-866-METH-TIP to report suspected manufacturing activities of this illegal drug. The Michigan State Police also have a methamphetamine website available **http://www.msp.state.mi.us/division/cid/meth/meth.htm**.

Fertilizer Product Information					
	FY'97	FY'98	FY'99	FY'00	FY'01
Fertilizer Facility Licenses	436	411	588	391	453
Speciality Products Registrations	3,363	3,347	3,351	2,900	3,153
Liming Materials Licenses	109	93	83	75	87
Fertilizer Distributed (tons)	1,472,359	1,421,049	1,480,492	1,396,429	1,355,255

Bulk Storage Program

By inspecting and registering businesses storing large quantities of agricultural chemicals, the bulk storage program helps prevent the likelihood of agrichemical contamination of Michigan's natural resources. The bulk storage program ensures commercial bulk storage facilities are constructed, installed, and maintained to protect the products being stored and personnel working in the facility.

Firms required to register with MDA are commercial facilities distributing and storing pesticides in containers larger than 55 gallons or 2,000 pounds and/or fertilizer in containers larger than 2,500 gallons, or 2,000 pounds, or having a combined total greater than 7,500 gallons. In 2001, over 240 facilities in Michigan met this requirement and were inspected by PPPMD staff.

The bulk storage program provides a uniform standard to guide the industry. In addition to annually inspecting each registered facility, PPPMD staff conducts consultations with firms in the initial stages of bulk storage construction. Site visits are arranged with firms to discuss and provide site planning, containment, and recordkeeping assistance.

In November, letters were sent to 93 firms with structural deficiencies related to their bulk storage operations. PPPMD recognizes missing or wrong sized secondary containment and mixing/loading areas to be major structural deficiencies. Firms were given a 20-day period to respond to the letter. The responses have some weight when determining additional enforcement action. These bulk storage enforcement measures help to assure that large quantities of agricultural chemicals are stored in a safe manner with the least possible impact on people, property, and the environment.

On-Farm Secondary Containment Demonstration Program

During 2001, PPPMD provided cost-share and technical support to assist 21 farms across the state construct secondary containment facilities around already existing on-farm bulk liquid fertilizer tanks. The demonstration sites are being used for educational purposes to illustrate a variety of fertilizer containment operations for sound on-farm storage.

In December 2001, a 19,000-gallon fertilizer tank ruptured at one of the farms participating in the demonstration program. The spilled fertilizer stayed entirely within an earthen berm lined with a synthetic rubber liner, which serves as secondary containment for the farm's fertilizer tanks. No release to the environment occurred and the product was recovered and placed into another container. Because secondary containment was in place during this accidental loss, the farm was able to prevent environmental contamination and avoid the expensive cleanup costs associated with losing thousands of gallons of nitrogen fertilizer.

Seed Program

Purpose and Scope

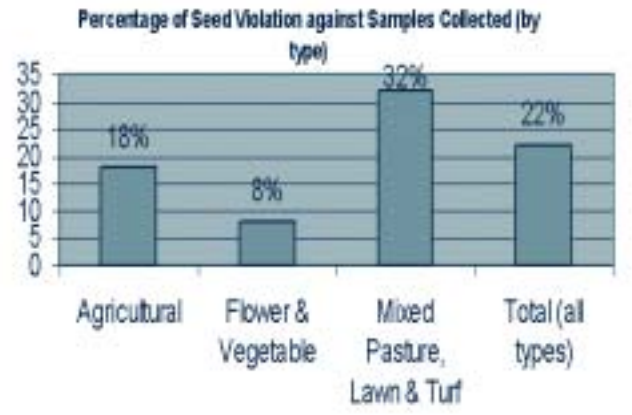
The objective of the seed program is to ensure that the seed purchased by Michigan growers and homeowners for planting purposes is of good quality and meets standards established in the Michigan seed law. The law includes minimum label information and standards for germination, purity, and freedom from noxious weeds. Through the seed program, MDA also provides oversight of seed certification activities that ensures the genetic purity of plant varieties and other standards of quality.

Through the seed program, MDA also assists USDA in assuring that seed companies comply with various federal seed requirements. It participates in the enforcement of the Federal Seed Act by providing samples and documentation for seed shipped in interstate commerce. MDA also provides samples of selected seed kinds to the USDA, which verifies varietal claims.

The seed program assists more than 400 seed labelers who process and distribute approximately 170,000 tons of agricultural and non-agricultural seed annually in Michigan. Approximately 52,000 farmers who produce more then one billion dollars worth of food and feed annually also benefit from this quality assurance program. In addition, state residents depend on this program to ensure that the seed they purchase for lawn and garden use is of reliable quality.

Regulatory Activities

MDA conducts routine inspections that often include the sampling of seed products to determine whether or not they meet required standards and are labeled truthfully. During FY2001 MDA inspectors collected approximately 1,460 seed samples including approximately 467 lawn/turf and mixed pasture, 71 flower and vegetable seed, and 922 field or agricultural seed. These inspections allow for the interception and removal of violative seed products from the channels of trade before they reach Michigan farmers and homeowners. MDA inspectors also issued 544 violation notices and removed over $1.6 million worth of violative seed products from the channels of trade during FY2001. Warning letters were sent to 2 firms for seed violations.



Rhizomania

MDA enforces the Rhizomania Quarantine. Rhizomania is a serious disease of sugar beets caused by beet necrotic yellow vein virus. The objective of this quarantine is to prevent the introduction of the disease by prohibiting the transport into Michigan of vegetative propagation materials from host plants originating in areas infested with beet necrotic yellow vein virus and of any soil associated with those plant parts, including the seed. This disease attacks the roots of sugar beet plants causing proliferation of the fibrous roots and preventing the development of a tap root, ultimately resulting in a nearly 100% reduction in sugar production. If established, this disease could be devastating to Michigan's sugar beet industry. During the year, 77 tests were performed on dry beans in support of the Rhizomania Quarantine's restriction on adhering soil. All samples examined were in compliance.

Seed Certification

The program also provides oversight for seed certification activities. The Michigan Crop Improvement Association, which is designated through regulation as the state's official seed certifying agency, provides a system for bringing high quality seed from outstanding field crop varieties to farmers and seedsmen. The certification concept is based on varietal purity, which is comparable to pedigrees in animals. It represents seed with the genetic potential to produce high crop yields and other desirable characteristics.

The seed program also oversees the certification of seed potatoes. This activity is conducted by the Michigan Seed Potato Association and is aimed at maintaining adherence to genetic purity and mechanical standards in seed stocks for both domestic and international use.

During 2001, PPPMD supported a bruise analysis program for seed producers meant to identify where injury to tubers occur in the operation.

Plant Pest

Nursery Program

During 2001, division field staff inspected nearly 14,000 acres of nursery stock and perennials in support of an industry with estimated annual sales exceeding $710 million. Nursery inspections facilitate the sales of plant materials such as hardy perennials, trees, shrubs, herbaceous perennials, small fruit plants and hardy bulbs. Michigan nursery growers produce stock for sale within the state and also ship to over 30 states and to many foreign markets. Through the inspection process, MDA ensures that plant materials entering market channels are free of pests and diseases, as well as meeting requirements for viability, trueness to varietal name, and quality standards, such as those prescribed by the American Nursery Association. Besides inspecting for pests and diseases, MDA field staff also makes sure that production areas are free from weeds. For those plants destined for out of state markets, the commodity must meet the phytosanitary requirements of the receiving state.

Through the nursery program, MDA conducted annual field inspections at the state's 2,165 licensed growers of nursery stock and perennial plants. In addition to the annual inspection, other specialized inspections may be required to facilitate movement of plants into the market stream, especially where quarantine pests may be present. Of primary importance are four major quarantine-significant pests: gypsy moth, Japanese beetle, pine shoot beetle and black stem rust. All counties in Michigan are included in the federal gypsy moth quarantine, while 72 counties are now regulated under the federal pine shoot beetle quarantine. Japanese beetle is the focus of several external state quarantines as well as the National Japanese Beetle Harmonization Plan. To certify plant materials for shipment outside the gypsy moth regulated counties, MDA inspectors assure freedom from this pest through an egg mass survey plus the required annual inspection. In areas of high gypsy moth populations, MDA also conducts additional checks in the spring for the presence of larvae that may be blown in from surrounding areas. The black stem rust quarantine applies to barberry and related species. Only approved resistant varieties may be sold.

During 2001 no incidences occurred involving gypsy moth egg masses on Michigan-grown nursery stock and Christmas trees. However, repercussion from three interceptions of egg masses on Christmas trees in 2000 continued to be an issue with regulators and growers alike. These past 12 months PPPMD has stepped up its educational efforts in both the nursery and Christmas tree industries regarding the issue of gypsy moth egg masses. In addition, PPPMD has increased the number of loading yard inspections during the Christmas tree shipping

season in an effort to prevent interstate shipment of this regulated pest and thus facilitate interstate trade. Undoubtedly, the certification of nursery stock and Christmas trees complying with the federal gypsy moth quarantine will continue to be a major challenge for the Michigan Department of Agriculture and the nursery and Christmas tree industries in Michigan.

Plant Grower Licenses	543
Total # of Growers Licensed	2,165
Nursery Stock Dealer Licenses	5,071
Plant Dealer Licenses	730
Total # of Dealers Licensed	5,801
Total Licenses Issued	7,966
Acres of Field Grown Stock Inspected	10,221
Acres of Perennial Plants Inspected	1,701
Acres of Native Trees Inspected	258
Acres of Container Stock Inspected	1,863
Acres of Scionwood Inspected	11
Acres of Seedlings and Transplants Inspected	77
Total # of Acres Inspected	14,132

Interstate Certification

Through the nursery program, MDA certifies plant material for interstate shipment. MDA field staff are responsible for ensuring that plant materials meet the quarantine requirements of the receiving states. Where appropriate, MDA enters into compliance agreements with the growers and shippers whereby a systems approach is used to facilitate movement of the commodity. This past year, a total of 139 compliance agreements were issued and monitored by MDA. With the removal of federal certification from the nursery license, MDA has largely switched to issuing federal certification through a redesigned Certificate of Quarantine Compliance. In some instances, Michigan firms are authorized to imprint invoices or other shipping documents with federal and state certification.

This past season, MDA issued 465 state phytosanitary certificates for interstate shipment of commodities. These included 421 certificates for propagative items, three certificates for hay and straw and 41 certificates for fruits and vegetables. During 2001 MDA developed an electronic version of the Certificate of Quarantine Compliance. This new version enables field staff to issue a custom certificate to each qualified firm, with increased accountability for commodities permitted for shipment in comparison to the previous paper version.

2001 Rose Evaluation Trials

For a fifth year, MDA worked with Dow Gardens in Midland, Michigan and the Rose Society to conduct a rose grow out and evaluation trials project. The project was initiated in 1997 due to concerns raised by the American Rose Society, the National Plant Board, and several states regarding the increased occurrence of rose mosaic viruses and concerns about accurate labeling. Objectives for this year's trials included checking for trueness to variety labeling, grade accuracy, and evaluating for the presence of rose mosaic viruses

MDA staff obtained all plants from nursery retail stores throughout the state. The plants were grown out at Dow Gardens under the care of a full time staff horticulturist and a master gardener. One hundred twenty rose plants were entered in the trials representing 24 varieties of 5 plants each. Plants were evaluated for presence of virus on the basis of visual observation and laboratory tests. Again, as in the past two years extensive laboratory testing using ELISA was incorporated into the evaluation. Laboratory tests were performed for the three most common viruses encountered in the rose mosaic complex – prunus necrotic ring spot, apple mosaic and arabis mosaic viruses. Only 1 variety was found to be completely free of virus. In the remaining 23 varieties one or more plants tested positive or exhibited symptoms. This year we tested root and bud tissue at planting time plus root, bud, leaf and flower tissues

in September. Results from the testing show that this process can be used to detect virus early in the season on dormant plants as well as later when the plants have matured.

MDA met with rose industry personnel to discuss the proposed graduated restriction program designed to improve the overall quality of roses sold in the state. It was agreed that MDA will use a 10 percent restriction threshold for the foreseeable future. This criterion calls for rejection of a variety when 10 percent or more of the plants are infected.

Export Certification

Under the cooperative agreement with the USDA, commissioned MDA staff members received training and authorization to issue federal phytosanitary certificates to facilitate trade in foreign markets. During 2001, PPPMD staff issued federal phytosanitary certificates to facilitate the export of Michigan commodities. These commodities were shipped to nearly 70 countries worldwide. The vast majority went to our trading partners in Canada and Mexico, as well as to Europe and South America. Over 1,350 federal certificates were issued covering the following commodities: beans and grains, 778 shipments; fruits and vegetables, 97 shipments; logs and lumber, 209 shipments; and propagative commodities (plants, cuttings, seeds and bulbs), 295 shipments.

This was the sixth year that MDA participated in a certification program to facilitate the movement of apples to Brazil. This was a cooperative effort between MDA, the USDA, Michigan State University, and the Michigan Apple Committee. The acceptance of this protocol by Brazil has opened another market for Michigan apples, bringing in additional income for apple producers. Due to the soundness of the procedures, Arizona officials also use this protocol for shipments entering that state.

In 1998 Canada changed their requirements for the movement of blueberries into and within Canada so that fruit could no longer be moved on a grade certificate from infested to non-infested areas. This change caused a certain amount of disruption in the export of blueberries to Canada. Based on this change, USDA-APHIS-PPQ and the Canadian Food Inspection Agency developed a pilot program to facilitate the movement of fresh blueberry fruit into and throughout Canada, while reducing the risk of further spread of the blueberry maggot. This program was developed with the input of several Canadian provincial agricultural ministries and the state departments of agriculture in Michigan and New Jersey. One Michigan grower registered for the program in 2001. Market conditions during the season, however, did not favor actually shipping to Canada.

U.S./Canada Greenhouse Certification Program

This past year, two additional Michigan firms were enrolled by MDA in the U.S. /Canada Greenhouse Certification Program. Qualified greenhouse growers may ship certain types of plants to Canada under a special sticker certification. Under this program, firms that produce herbaceous perennials, bedding plants, annuals, cacti and some aquatic plants may qualify for use of a special export certificate for shipments going to Canada. Woody ornamentals are excluded. To qualify the firm must have a documented pest management program, grow all the plants in a secure screened greenhouse and maintain records of all shipments. MDA's role is to monitor the firm for compliance with the program. Firms that qualify are issued special serially numbered sticker certificates for attachment to shipping documents. This past shipping season an estimated 575 shipments were made by the three firms enrolled in the program.

Christmas Tree Certification

During 2001 MDA field staff inspected 17,680 acres of Christmas trees for compliance with federal gypsy moth and pine shoot beetle quarantines. The annual wholesale and retail sales of Christmas trees by Michigan producers is valued at over $38 million, representing nearly 3.5 million trees. Of the 818 fields inspected, 95 percent were certified for shipment outside the state. About two-thirds of the restrictions were for presence of gypsy moth egg masses, with the remainder for presence of pine shoot beetle

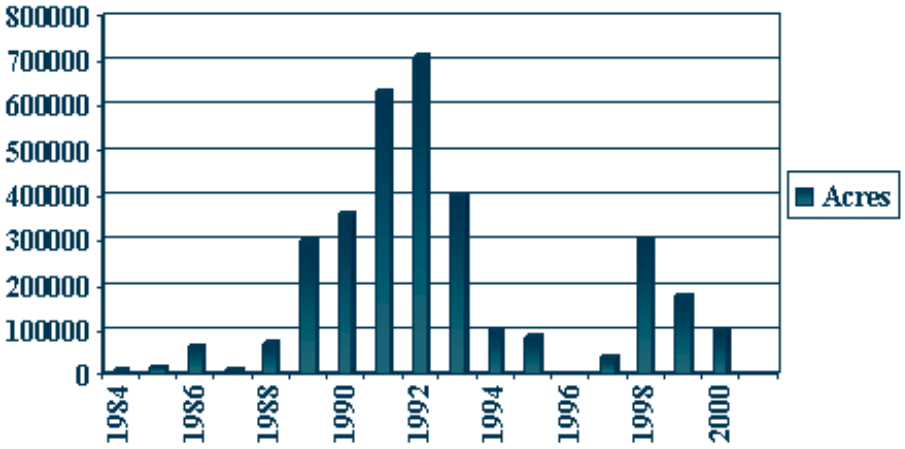
The year 2001 marked the fifth year of participation in the Pine Shoot Beetle Compliance Management Program for certifying pine Christmas trees. This year, 17 firms enrolled 61 fields in the PSB Compliance Management Program. Out of these fields, a total of 54 passed after meeting the program requirements. The remaining fields either failed to meet requirements or were removed from the program voluntarily by the grower.

Gypsy Moth Program

From the perspective of landowner nuisance, its impact on wood fiber production and interstate movement of Christmas trees and nursery stock, gypsy moth continues to be the most serious plant pest in Michigan. The Pesticide and Plant Pest Management Division provides a four-prong approach to gypsy moth control through the Suppression Program, Education Project, Slow the Spread Program and Biological Control.

Cooperative Gypsy Moth Suppression Program

There are three main goals in the Michigan Cooperative Gypsy Moth Suppression Program. First, the protection of trees for esthetic and wood fiber production purposes. Second, the reduction of larval numbers in residential and recreational areas so citizens can enjoy Michigan's summer. Third, to reduce the improper use of pesticides for management of the gypsy moth problem.



MDA administers this suppression program, provides coordination and oversight and acts as the pass through agent for USDA Forest Service funds to counties.

The FY'01 treatment area encompassed 6 counties and nearly 6,000 acres in Lower Michigan. This activity provided protection to an estimated 6,700 residents and 55,000 people visiting Michigan's recreational areas. These areas have experienced some degree of defoliation for one or more years making trees susceptible to mortality and providing a serious nuisance to residents and visitors. All areas were treated using helicopters or fixed wing aircraft. The biological insecticide, Bacillus thuringiensis ssp. kurstaki (Btk) or Gypchek, a nucleopolyhedrosis virus, which is specific to gypsy moth, was applied during the treatment period.

The overall defoliation trend in Michigan has been one of decline since its high of 300,000 acres in 1998. And, for the first time since the MDNR has been conducting the yearly aerial defoliation survey, Michigan had no measurable defoliation during the summer of 2001. This does not mean that defoliation didn't occur it just means it did not occur over large areas (greater than 5 acres) with more than 50% of the leaf material missing. Both are necessary for defoliation to be seen from a plane. The fact is communities in a number of places continue to deal with gypsy moth.

Education Project

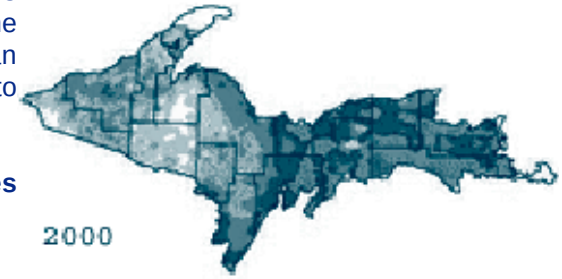
Unique to Michigan, a legislative grant through MDA is provided to Michigan State University (MSU) to conduct a statewide gypsy moth education program. This grant has been used to develop a gypsy moth educational strategy that provides information and educational opportunities to Michigan citizens.

Slow-the-Spread (StS) Project

Gypsy moth continues to spread to new locations both in Michigan and in other states. Though stopping the spread of gypsy moth is not practical, slowing the rate of spread is possible.

Toward this end, the USDA Forest Service, in cooperation with all states along the leading edge of the gypsy moth infestation (North Carolina, Virginia, West Virginia, Ohio, Indiana, Illinois, Wisconsin and the U.P. of Michigan) have been employing practical trapping and treatment processes to slow the spread of gypsy moth. Over the entire area, the program has been able to slow the spread due to human accelerated gypsy moth advancement from 13 miles per year to approximately 3 miles per year.

2000 Male Moth Catch Data: (Darker shading indicates greater moth catches)



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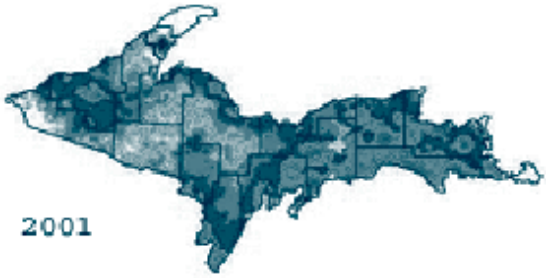

The 2001 program set nearly 3,000 traps across the entire U.P.. Male moth catches increased over the 2000 program in all of the western and central portions of the U.P. This continues the trend seen over the past two years.

Biological Control

Biological control continues to be a critical element in managing gypsy moth populations. Eight species of biological control organisms from Europe and Asia have been released to control specific life stages of gypsy moth. Each of these biological control species has been carefully selected for managing gypsy moth.

The fungal pathogen, Entomophaga maimaiga has been established throughout the infested area and has provided significant control especially under warm, damp conditions. This particular pathogen has not been very active in Michigan during the previous two Springs, but it, to limited degree, and the nucleopolyhedrosis virus, to a much greater degree, hit the 2001 population hard. As a result we are seeing limited defoliation, as noted earlier, and greatly reduced egg mass densities all across the Lower Peninsula. Clearly the biological control program is having an impact on gypsy moth in Michigan.

Plant Pest Survey Program

This is a summary of activities and accomplishments in the Plant Pest Survey program area during FY2001.

Asian long-horned beetle (*Anoplophora glabripennis*)

Called the Asian longhorned because of its exotic origins and long antennae, is a destructive beetle of hardwood tree species. It has been detected in Brooklyn and Amityville, New York and Ravenswood area in Illinois. In New York, the beetle has been attacking maple (Acer) species, including Norway, red, sugar, silver, boxelder, and sycamore maple. In the United States this insect has the potential to be extremely damaging to the commercial, residential, and vast hardwood forests of this country. The insect is indigenous to southern China, Korea, and Japan where it kills hardwood species aforementioned plus elms, poplars, and willows.

To determine the status of this exotic insect in Michigan, detection surveys were done at 8 high-risk warehouses and immediate vicinities and 424 nursery locations and all locations were negative.

Beech Bark Disease *Cryptococcus fagisura* (Scale) *Nectria coccinea* (Fungus)

Beech bark disease represents a unique relationship between the beech scale insect, *Cryptococcus fagisuga* Lindinger, and the fungal pathogen *Nectria coccinea* var. *faginata* for which beech bark disease is named. Beech bark disease is a canker disease caused by the *Nectria* fungus. The beech scale facilitates entry of the pathogen. The scale insect and fungal pathogen work in combination to kill patches of inner bark. Cankers can expand and join together to girdle the tree, in this instance the tree may die. Many beech trees die but others do survive in spite of severe canker development.

In the summer of 2001, beech bark disease was confirmed at Ludington State Park and in Luce County in the Upper Peninsula. Detection surveys were done at 147 nursery and vicinity locations and all were negative. This survey was done to supplement the survey efforts of Michigan Department of Natural Resources in establishing the current distribution of Beech Bark Disease in Michigan.

Blueberry scorch virus

The Blueberry scorch virus (BBScV) is thought to be vectored by aphids. Once a plant is infected, symptoms may take 1 to 2 years or more to develop. This makes early detection vital for controlling the disease. All cultivars are susceptible, but a few are tolerant. The disease has been confirmed in Oregon, Washington (south of Seattle) and British Columbia.

To determine the status of Blueberry scorch virus in Michigan a detection survey was done by collecting and testing 32 samples from major blueberry growing areas and all were negative.

Blueberry shock virus

The Blueberry Shock Virus (BlShV) was first reported in *Vaccinium corymbosum* from Washington State in 1991. Virus spreads quickly in a crop and removal of infected

plants does not slow the spread of the virus significantly. The virus is transmitted by mechanical inoculation and grafting and is not transmitted by contact between plants. Besides Washington, this disease is also known to occur in Oregon.

Twenty-nine samples were collected from major blueberry growing areas and tested for Blueberry Shock Virus and were all negative. This survey was done to ascertain the status of this disease in Michigan.

Brown lipped snail *(Cepaea nemorallis)*

From the information collected, this snail appears to be more of a nuisance than a plant pest. Additionally, the population levels of snail also seem to associated with certain weather conditions. This is the second year of survey for this snail and it was to determine its distribution in the state. Of the 394 locations inspected statewide for Brown lipped snail, it was found in 1 location.

Brown spruce long-horned beetle *(Tetropium fuscum)*

The Brown spruce longhorn beetle (BSLB), *Tetropium fuscum* was found in dying red spruce trees in Halifax, Nova Scotia in March 1999. Subsequently the Canadian Forest Service observed that *Tetropium fuscum* was also attacking apparently healthy trees. Spruce (Picea spp.) trees are the main hosts of Brown spruce long-horned beetle. This insect is native to Europe, where it can be found from Scandinavia to Turkey. It is also known from Japan. The find in Nova Scotia is believed to be the first discovery in North America.

To determine the status of Brown spruce longhorned beetle in Michigan, 436 nursery locations were inspected statewide and were all negative.

Chrysanthemum White Rust: *(Puccinia horiana)*

This disease has the potential to be extremely damaging to the commercial horticulture and florist industries if it becomes established in the United States. The disease is indigenous to China and Japan, but has since spread to Europe, Australia, South America and Africa. Chrysanthemum white rust (CWR) has been accidentally introduced several times in the United States over the past several decades by chrysanthemum hobbyists, but aggressive eradication programs have successfully prevented establishment.

As this exotic disease is not known to occur in Michigan, a detection survey was done at 287 locations for Chrysanthemum White Rust and were all negative.

Daylily Rust *(Puccinia hemerocallis)*

The daylily rust fungus, *Puccinia hemerocallis* was found on daylilies in a southeastern U.S. nursery for the first time in the summer of 2000. This particular rust is very aggressive on the daylily variety “Pardon Me”, on which the rust kills the foliage. Other daylily varieties have been infected, but not as severely as “Pardon Me”. Following inoculation of leaves, infection occurs only two to three days later. Not only does the rust have a short incubation period, but it also spreads fairly quickly in the nursery.

As the Michigan growers and dealers receive significant quantities of daylily from the Southeastern states of the U.S. where Daylily rust is known to occur, a detection survey was done at 516 locations and Daylily rust was found in 6 locations.

Dogwood Anthracnose *(Discula destructiva)*

The native flowering dogwood, *Cornus florida* is a popular ornamental tree that thrives well in the warmer areas of the Northeast. However, the fungal disease, Discula destructiva (also known as Dogwood Anthracnose), threatens our native and ornamental flowering dogwoods. The first case of Dogwood Anthracnose in New Hampshire was confirmed in 1991.

Of the 278 nursery locations inspected statewide for Dogwood Anthracnose, it was detected in 11 locations.

Flat scarlet mite *(Cenopalpus pulcher)*

During the summer of 2000 a mite species was identified in western Oregon that was not previously known to be present in the United States. The flat scarlet mite (*Cenopalpus pulcher* Canestrini and Fanzago) is a minor pest of apples and other pome fruits in Europe, northern Africa and western Asia. The detection survey in Michigan was done on the basis of information received from the USDA, APHIS, PPQ indicating that some of the plant material possibly exposed to this mite have been shipped to this State. A total 139 locations were inspected statewide for Flat scarlet mite and were all negative.

Geranium Plume Moth: *(Platyptilia pica)*

Geranium plume moths appear to be most active in California although they have been found in southeastern greenhouses that have received cuttings from California. Plume moth larvae mine the leaves and feed externally on leaves, buds, and flower parts. The Michigan Department of Agriculture currently has an exterior quarantine, regulating the movement of Geranium cuttings from California. A detection survey of 131 locations was done statewide for Geranium Plume Moth to determine its status and all locations were negative.

Hemlock Woolly Adelgid *(Adelges tsugae)*

The eastern hemlock (Tsuga canadensis) has suffered significant decline in the Northeastern states over the past decade and much of the decline has been attributed to an introduced insect called the hemlock woolly adelgid (*Adelges tsugae*). The hemlock woolly adelgid is a 2 mm long aphid-like insect with piercing/sucking mouthparts. It attacks hemlocks from the base of the needles. Because individual adelgids are so small, the first indication of infestation is usually the discovery of the white, cottony egg sacs.

A total of 233 locations were inspected statewide for Hemlock woolly adelgid and were all negative. However, two shipments of Hemlock received from an East Coast nursery were found to contain heavy infestations of Hemlock woolly adelgid. Prompt and effective regulatory actions were undertaken by the MDA to mitigate these introductions. MDA established a Hemlock woolly adelgid Exterior Quarantine to regulate the movement of Hemlock from Hemlock woolly adelgid infested states into Michigan.

Inula britannica

Inula britannica was first noticed as an aggressive weed in several nurseries in Michigan around 1990. It has been found primarily in Ottawa County in hostas imported from the Netherlands. State regulatory action has restricted the movement, distribution and sale of the hostas until the infestation is cleaned up. A recent USDA APHIS pest risk assessment concluded that the species "rates as a medium consequence of introduction, and a high likelihood of introduction, for a medium/high risk potential." The New Pest Advisory Group (NPAG) consensus was that if the plant is not currently widely distributed, there may be enough risk to classify this pest as a Federal Noxious weed. A delimiting survey to assess infestations outside Michigan, particularly of nurseries receiving hostas from Michigan or from the Netherlands would provide information to support a final regulatory decision regarding listing.

Of the 275 locations inspected statewide for *Inula britannica*, it was found in 10 locations.

Japanese Beetle *(Popillia japonica)*

Japanese beetle, *Popillia japonica*, Newman, was first discovered in the United States in 1916. It spread rapidly in this new environment and has become a serious pest. More than 400 plant species within 95 families are susceptible to attack by this pest. Adult beetles not only damage numerous ornamental herbaceous plants, shrubs, vines and trees, but also small fruits, tree fruits, row crops, and many other plants. Beetle grubs feed on plant roots, attacking mainly turf (lawns, golf courses, and pastures) but also damage the roots of many other crops and ornamental plants.

MDA conducted both countywide and site specific surveys for Japanese beetle in Regions 2 and 3. Countywide survey was done in 6 counties. A total of about 710 traps were set. Site-specific trapping was employed at exporting nurseries in support of Japanese Beetle Harmonization Plan. The Counties of Emmet and Manistee were recommended for designation as quarantine counties, due to JB catches in the past two years.

Japanese cedar long-horned beetle *(Callidiellum rufipenne)*

Japanese cedar long-horned beetle is a wood-boring beetle of East Asian origin that was first detected in the U.S. in 1954. It was discovered again, this time in North Carolina in 1997. In its native range the Japanese cedar longhorned beetle is considered a secondary pest of conifers, but in Connecticut it was found to develop in healthy arborvitae.

To determine the status of this exotic insect, a total of 269 locations were inspected statewide and were all negative.

Karnal Bunt

Karnal bunt, or partial bunt, is a fungal disease of wheat, durum wheat, and triticale (a hybrid of wheat and rye). Typically, only a portion of the kernel is affected; this is why the disease is sometimes called partial bunt.

Climatic conditions determine the extent of the disease. The damage may be twofold: infected plants may produce less grain, and the quality of the grain itself may be lessened.

This was the sixth year that MDA participated in the Karnal Bunt National Survey. During the 2001 growing season, MDA staff collected 15 wheat samples from grain elevators in the wheat producing counties within the state. The primary focus for the survey was local grain storage facilities storing wheat grown during the 2001-growing season. The samples were submitted to the USDA laboratory in Niles, Michigan. The purpose of the survey is twofold: To determine the status of this exotic disease in this State and; to use the negative data to facilitate certification of wheat for export. All samples tested negative for Karnal bunt.

Pine Shoot Beetle *(Tomicus piniperda)*

The pine shoot beetle *(Tomicus piniperda),* a foreign pest of pines, was discovered at a Christmas-tree farm near Cleveland, OH, in July 1992. A native of Europe, the beetle attacks new shoots of pine tree, stunting the growth of the tree. The purpose of the survey is to determine the status of the PSB non-infested counties and to utilize the survey data to provide certification for nursery stock and cut Christmas trees.

This year's survey included 36 sites in 3 counties, primarily in the western Upper Peninsula of the state. The USDA assisted MDA in this survey. Funnel traps were again used for this survey. As a result of beetle catch in Dickinson County, this county was declared as quarantined for Pine Shoot Beetle.

Plum Pox Virus Sampling

Plum pox, also known as sharka, is the most devastating viral disease worldwide of stone fruit including peaches, apricots, plums, nectarines, almonds, and sweet and tart cherries. The disease significantly limits stone fruit production in areas where it is established. Plum pox virus was detected in Pennsylvania in 1999. The purpose of the survey was to determine the status of this exotic disease in this State and to utilize the survey data to provide certification for export of plant material listed above.

The Michigan Department of Agriculture collected and tested a total of 46,322 laboratory samples between the months of June and August 2001. The samples were tested by the MDA Laboratory Division in accordance with the protocols provided by the USDA, APHIS, PPQ. Samples comprised of Peach, Plum, Apricot and Nectarine leaf samples were collected from 1798.7 acres belonging to 144 growers, and located in 27 counties. All samples were negative for Plum Pox Virus.

Plant Pest Permit

Permit requests from 94 individuals to import plant pest species were reviewed during FY2001.

Plant Pathology Section

Plant Pathology Section in cooperation with Pesticide and Plant Pest Division is actively involved in improving the quality of pome and stone fruit trees in Michigan. This program is established at Hilltop Nurseries, Inc., in Hartford, Michigan. The nursery maintains 12,600 stone and pome fruit trees in four scion-wood orchards for certification of bud-wood for virus free status. In 2001 the nursery sold less than a million certified fruit trees due to a lack of grower's interest in apple trees.

We have been conducting virus free certification of blueberry plants to help growers obtain disease free vigorous plants for export and planting. Under this program we tested 303,043 blueberry plants for five plant viruses and approximately 200,000 certified plants were sold to the growers across USA and foreign countries. In addition a survey was conducted in the nurseries and blueberry farms to determine the status of blueberry scorch and blueberry shock virus in Michigan. All the samples tested for the above two viruses were found to be negative.

To facilitate introduction of foreign genetic material to improve the quality of fruit trees and landscape material MDA authorized 8 permits to import 16,037 plants (Rosa, Hydrangea, Hibiscus, Prunus, Malus and Acer species) under the post-entry quarantine program.

In 2001, USDA APHIS in cooperation with MDA issued 45 permits to conduct research on poplar, grasses, potato, apple, tobacco, alfalfa and corn in Michigan. Among these, 34 were issued for field trials on 37 sites and 22 for interstate movement of genetically engineered plants to assess insect and disease resistance, herbicide tolerance, improved oil contents, altered carbohydrate metabolism, and lignin biosynthesis. Ten companies and universities conducted environmental release trials in 14 counties.

Dry bean industry is a very important component of the Michigan economy. To maintain the quality of dry bean seed and meet seed certification and export requirements we have been testing bean samples for seed borne diseases (Anthracnose, Common Bean Mosaic Virus and Common Bean Blight). In 2001 we tested 204 samples and found 5 samples of certified seed and 6 samples of non-certified seed infected with common bean mosaic virus. We also detected 3 samples of certified and 1

sample of non-certified seed infected with common bean blight and 4 samples of certified dry bean seed infected with anthracnose.

In 2001 six seed companies submitted 10,250 acres of seed corn for phytosanitary certification. We inspected 151 fields submitted by 5 companies for bacterial, fungal and viral diseases in 5 counties. We did not detect Erwinia stewartii in any of the samples.

Due to the presence of Soybean Cyst Nematode (SCN) in 31 counties in Michigan, the SCN survey was conducted to facilitate the movement of nursery stock and plant products for export. In 2001 MDA collected 134 samples from 60 nurseries in 31 counties representing 1,227 acres. We also analyzed 38 samples from seed potato fields in 8 counties representing 1,119 acres and 3 samples from soybean fields in two counties for export certification. None of the nurseries were infested with SCN and Golden Cyst Nematodes.

In 2001 we received 264 samples of 92 plant species from the nurseries submitted by 45 field staff for regulatory action. In addition we analyzed 40 samples from 10 counties for oak wilt and 1 sample for Dutch Elm Disease. We also tested 120 rose samples representing 24 varieties for Rose Mosaic Virus. This project was initiated to find out if rose bushes being shipped to Michigan are bringing in the disease and for consumer protection. It was interesting to note some co-relation between bud and root samples from the infected plants.

In 1997 Michigan Crop Improvement Association (MCIA) and Michigan Foundation Seed Association (MFSA) merged to consolidate the operation. Because of this merger we maintained an oversight on the inspection of MFSA seed trials in Michigan to facilitate the certification of field crop seed.

CONCLUSION

For more information on this report or for questions on Pesticide and Plant Pest Management Division program activities, consult the MDA web site at www.michigan.gov/mda or contact the division at (517) 373-1087.

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